Envisioning Phased Environmental Protection Scenarios — (Version 1.4, June 22, 2018) – E-Enterprise for the Environment

This document draws from interviews of select EELC members conducted May-June 2018; scenarios are an amalgamation of ideas compiled by Tom Burack under contract to ECOS for E-Enterprise for the Environment. Each phase builds upon the prior phase(s) across each row, and among rows. Each box is intended to describe the added functionality in that phase. Selected storylines from the EELC interviews are included below each focus area to provide additional context.

	1st (Current) Phase	2nd Phase	3rd Phase	4th Phase	5th Phase	6th Phase
Overall/Program- and Enterprise-Wide	Current regulatory and support structure; EPA delegates to states and tribes.	Programs speedier and streamlined; simple matters automated; funding/resources/grants and vision fully aligned; delegated programs more synchronized, consistent and cost-effective.	Increased data availability; more real-time data; more technical assistance; widespread adoption of continuous process improvement and improvement science.	Rapid, risk-based, data-driven decision-making commonplace in planning, rulemaking and other functions.	Fully-integrated, real-time data-driven regulatory system and regulations across tribes, states and EPA, and across media-specific programs.	Regulatory system focused on: risk management and prevention; what we don't yet know; restoration and environmental enhancement.
Storylines from EELC Interviews	• Governments are increasingly expected to move at the speed of business. People can order things online and now have the expectation that they can do the same thing with their government. It's all about instant gratification. • Some people think agencies should be reactive (or inactive), but today the expectation is more about being proactive. If we can tap into better information earlier, then we can build programs differently. • I need E-Enterprise tools that make the day-to-day programmatic work more standardized and less burdensome. • In this age of continuous change, we need to continuously improve, but we haven't been doing that. • In the future, we should work as one cohesive unit. Why does everyone have to invent the same tool over and over?					
Permitting (All approval types)	Current mix of paper and e-processes; individual and general permits.	Submittal, review and approval processes simplified and streamlined; routine permits fully automated; staffing, training and outreach aligned.	Permitting is integrated across programs and jurisdictions; most permitting conducted online; consistent and predictable processes and permits.	"Smart Permits" self-report violations; all permitting online; regulatory staff focus on complex projects requiring judgment and discretion.	"Instant permits" issued, and terms adjusted based on constant monitoring and feedback; permits only issued when ambient standards are not achieved.	No (few) permits needed because violations not possible; allowed activities do "no net harm."
Storylines from EELC Interviews	• When you move to an electronic permitting process there is an economic value because you are making permitting decisions more quickly. • Thirty years from now, you may not even need to file a permit application; regulators could just pull publicly available, geo-located data. • In the future, we will have lots of automatic sensors, so you may not even write a permit unless data show there could be a need for compliance.					

Compliance/Monitoring (Ambient and Compliance)	Current compliance regime and mechanisms.	Paperless inspections; real-time identification of violations; technology speeds up compliance verification; more focus on compliance assistance; all ambient and compliance monitoring data posted digitally in real-time.	Advanced monitoring and data accessibility enable more scrutiny and opportunities for manual self-corrections and self-reporting; regulators have instant access to real- time compliance data.	NGO scorecards and business supply chain requirements combine with data analytics to complement compliance and regulatory efforts.	Technology spots and prevents potential violations or failures to meet standards; all non-restricted compliance data are publicly accessible.	Designed/built-in compliance; zero "net impact" from regulated operations; incentives for "net positive impact"; nearly all media in all locations meet all standards, and all regulated facilities fully compliant, at all times.
Storylines from EELC Interviews	• Trends are, and expectations should be, that we adopt systems that allow us to incorporate information as it is received immediately, whether from labs or ambient sensors, and the systems automatically flag where there are compliance issues. That's a big change from manual processing of paper reports. • In the future, we'll be inspecting with tablets fully loaded with real-time data, to provide instant violation detection and prompt resolution. We'll turn inspection results into environmental results. • Regulated entities are concerned about regulatory actions but may be driven more by the knowledge that investors won't provide funding if they aren't in compliance.					
Data Management	The information users need is tightly bound to systems, some of which inter-operate. End users must navigate these systems, sometimes via a partially integrated portal.	Systems begin to fade from user experience, more integrated experiences via integration in the background, but these integrations are still hand-crafted and expensive.	Increased data availability, including from advanced monitoring; full data sharing across the enterprise. System and data integration are seamless from user's perspective.	Data are readily accessible, shared, and analyzed. Systems ensure data validity and verification virtually in real-time.	Data and metadata are totally transparent. Data standards identify appropriate uses for different data sets. Systems enable comprehensive data analysis in real-time.	Information provided seamlessly in the context and format needed by the user to accomplish the task. Users are unaware of and don't care about systems. Quality, integrity, and legitimacy of data are ensured.
Storylines from EELC Interviews	• Think about the world in the future in which the data we may be asked to use is not our "own." How do we prepare to cope with that? • If we don't change how we do things, we risk the Tower of Babel, with everyone speaking their own language and unable to communicate with one another. • People want to take information and figure out what it means for their business and/or livelihood. We haven't been looking at our data in that manner. We have been collecting data to help manage regulatory programs, to help with compliance, and to report on the quality of the nation's air and water, but not considering that other people might want to use that data to inform their own decisions. • It's stunning that in 2018 people are still talking about how difficult it is to put data into EPA systems. • 'Build it and they will come' doesn't work anymore when it comes to EPA developing computer systems that states and tribes are expected to use.					